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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,191

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EXAMINER

KEE, FANNIE C

ART UNIT

PAPER NUMBER

3679

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DELIVERY MODE

04/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,191	Applicant(s) WADA, SHIZUO	
	Examiner FANNIE KEE	Art Unit 3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 April 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Oath/Declaration

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because: on pages 1 and 2, the word "January" has been misspelled.

Drawings

3. The drawings are objected to because in Figure 2, the lead lines for reference elements "L" and "D₃" should not cross each other.
4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the concave inner surface having a bottom edge must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

5. Figure 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).
6. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The abstract of the disclosure is objected to because the reference element numbers should either be deleted or enclosed within parentheses and because of a

minor grammatical error, i.e., add the word --which-- between the words "metal rube 20" and "is" in line 2.

Correction is required. See MPEP § 608.01(b).

8. The disclosure is objected to because of the following informalities:
 - a. Page 1, line 34 – replace the words "Since the" with --The--.
 - b. Page 6, line 18 – add the words --to be-- between the words “need” and “precisely”.
 - c. Page 8, line 15 – replace the word “hart” with the word --part--.
 - d. Page 9, line 30 – replace “bottom edge 34” with --bottom edge 34a--.

Correction is required.

Claim Objections

9. Reference element numbers such as "R" and "t" should be removed from claims 1 and 6. Claim 6 should be re-written in the same form as claim 7 should Applicant wish to define the components of the equation.
10. Claims 2 and 7 are objected to because of the following informalities: add a comma after the word “member” and before the word “having” in line 2.
11. Claim 3 is objected to because of the following informalities: add an --s-- to the end of the word “exert” in line 3.

12. Claim 5 is objected to because of the following informalities: add the word --outer-- between the words "curved" and "surface" in line 4.

13. Claim 7 is objected to because of the following informalities: add the word --on-- before the word "which" in line 6.

Correction is required.

Claim Rejections - 35 USC § 112

14. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

15. Claims 1-9 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention

Claims 1, 2, and 7 recite "[a] flared end structure of a metal tube to be pressed against a seat formed in a member by tightening a coupling nut to the member, said flared end structure having..." This claim appears to be a combination-subcombination claim where the combination is the flared end structure of a metal tube, member and coupling nut together and the subcombination is the flared end structure of a metal tube

by itself. However, claim 1 does not further define the member or the coupling nut and only defines the features of the flared end structure of a metal tube. It appears that Applicant is attempting to claim the member and coupling nut without positive recitation of the combination. Therefore, Applicant is not actually claiming the combination. Examiner's understanding is that the Applicant is claiming the subcombination, that is, Applicant is only claiming the features of the flared end structure of a metal tube.

Claims 1, 2, and 7 recite "the curved part has a curved outer surface and a concave inner surface". Outer and inner with respect to what axis and in what manner? For examination purposes, any convenient inner or outer surface will meet this claim limitation.

Claim 2 also recites "the curved outer surface has a center of curvature at a position on the radially outer side of the bottom edge of the concave inner surface". What does Applicant mean by this statement? Also, what does Applicant mean by the radially outer side? Outer with respect to what and in what manner? For examination purposes, any convenient radially outer side will meet this claim limitation.

Claim 3 recites "wherein the curved outer surface merges into a flat surface, on which the coupling nut exert pressure, of a neck part". There is no antecedent basis for this claim as the coupling nut is a structure which has not been positively recited.

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

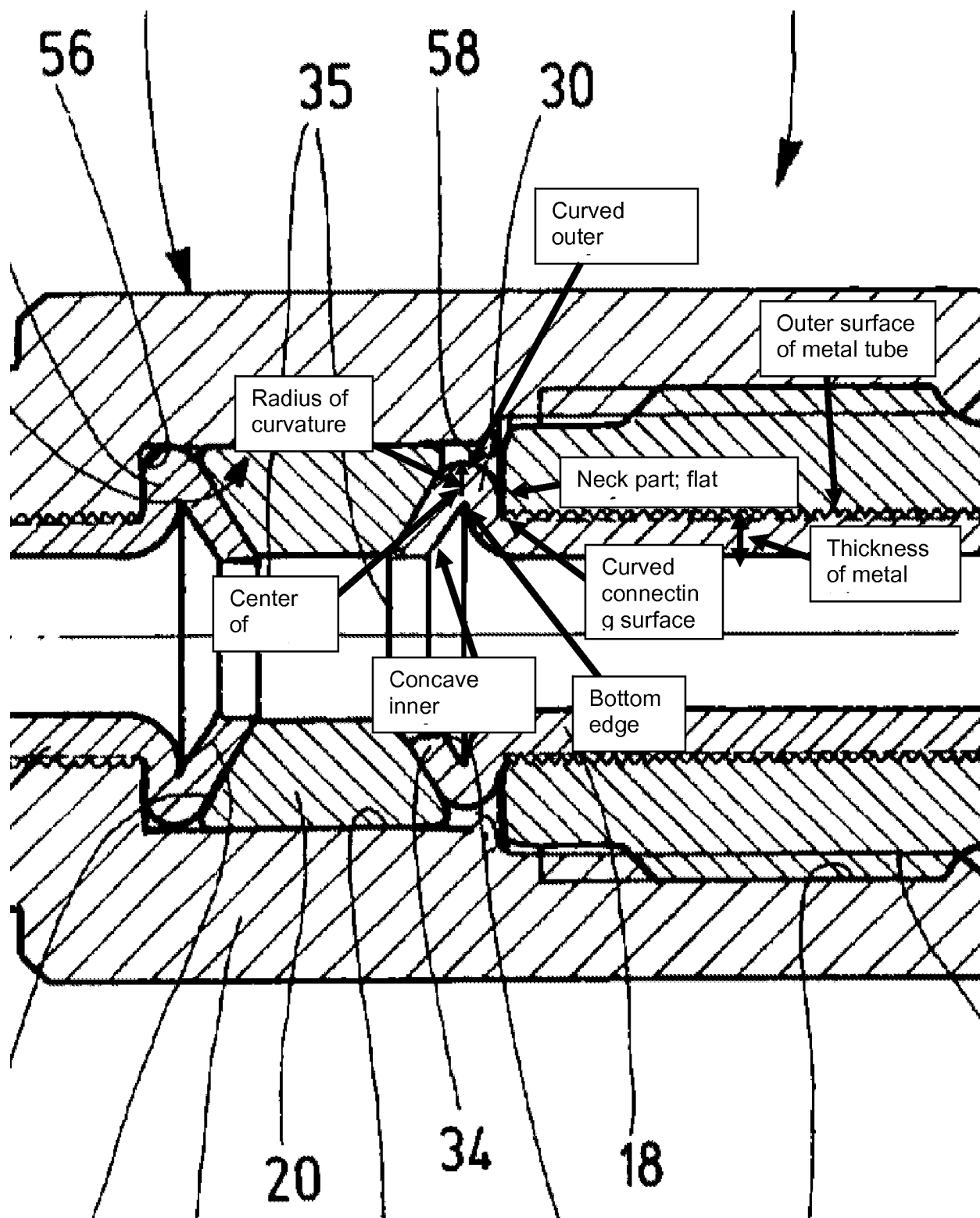
17. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Stahn et al European Patent Application No. EP 1,236,946 A1.

With regard to claim 1, and as seen in the figure below, Stahn et al disclose a flared end structure of a metal tube to be pressed against a seat formed in a member by tightening a coupling nut to the member, said flared end structure having a joining end part **(34)** to be pressed against the seat of the member, and a curved part **(30)** continuous with the joining end part;

wherein the curved part **(30)** has a curved outer surface and a concave inner surface having a bottom edge, and

the curved outer surface has a radius R of curvature smaller than a wall thickness t of the metal tube.

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With regard to claim 2, and as shown in the figure above, Stahn et al disclose a flared end structure of a metal tube to be pressed against a seat formed in a member by tightening a coupling nut to the member having a joining end part **(34)** to be pressed against the seat of the member, and a curved part **(30)** continuous with the joining end part;

wherein the curved part **(30)** has a curved outer surface and a concave inner surface having a bottom edge, and

the curved outer surface has a center of curvature at a position on the radially outer side of the bottom edge of the concave inner surface.

With regard to claim 3, and as shown in the figure above, Stahn et al disclose the curved outer surface merging into a flat surface, on which the coupling nut exert pressure, of a neck part, and the bottom edge of the concave inner surface is in a radial range corresponding to the flat surface of the neck part.

With regard to claim 4, and as shown in the figure above, Stahn et al disclose the flat surface of the neck part being perpendicular to the axis of the tube.

With regard to claim 5, and as shown in the figure above, Stahn et al disclose the flat surface of the neck part being connected to the outer surface of the metal tube by a curved connecting surface having a center of curvature at a position radially outside the

metal tube, and the flat surface extends between the curved surface of the curved part and the curved connecting surface.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stahn et al.

With regard to claim 6, Stahn et al disclose the claimed invention but do not disclose that the radius R of curvature and the wall thickness t of the metal tube meet an inequality: $0.8t \leq R \leq t$.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the flared end structure of a metal tube such that the radius of curvature and the wall thickness of the metal tube meet the inequality: $0.8t \leq R \leq t$ because a change in the size of a prior art device is a design consideration within the skill of the art (In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955)) and because the optimization of proportions in a prior art device is a design consideration within the skill of the art (In re Reese, 290 F.2d 839, 129 USPQ 402 (CCPA 1961)).

With regard to claim 7, Stahn et al disclose a flared end structure of a metal tube to be pressed against a seat formed in a member by tightening a coupling nut to the member having a joining end part **(34)** to be pressed against the seat of the member, and a curved part **(30)** continuous with the joining end part;

wherein the curved part **(30)** has an curved outer surface and a concave inner surface having a bottom edge, and

the curved outer surface merges into a flat surface, which the coupling nut exerts pressure, of a neck part, and,

the flat surface of the neck part is connected to an outer surface of the metal tube by a curved connecting surface having a center of curvature at a position radially outside the metal tube.

However, Stahn et al do not expressly disclose that a distance including a tolerance between the flat surface of the neck part and the end of the joining end part of the metal tube meets an inequality:

$$L1 \leq L \leq L2$$

where

$$L1 = \{(D1 - D3)/2 + r\}/\tan(\alpha/2) + t/\sin(\alpha/2) + t$$

$$L2 = \{(D2 - D3)/2 - t\}/\tan(\alpha/2) + t/\sin(\alpha/2) + t$$

D 1: Outside diameter of the metal tube

D2: Outside diameter of the flared end structure

D3: Inside diameter of the end of the flared end structure

r: Radius of curvature of the curved connecting surface

α : Cone angle of a cone containing the joining end part

t: Wall thickness of the tube.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the flared end structure of a metal tube such that the distance including a tolerance between the flat surface of the neck part and the end of the joining end part of the metal tube meets the inequality: $L1 \leq L \leq L2$ because a change in the size of a prior art device is a design consideration within the skill of the art (In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955)) and because the optimization of proportions in a prior art device is a design consideration within the skill of the art (In re Reese, 290 F.2d 839, 129 USPQ 402 (CCPA 1961)).

With regard to claim 8, and as shown in the figure above, Stahn et al disclose the flat surface of the neck part extending between the curved outer surface and the curved connecting surface.

With regard to claim 9, Stahn et al disclose the claimed invention but do not expressly disclose that the tube has an outside diameter not smaller than 6 mm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have fabricated the tube such that the tube has an outside

diameter not smaller than 6 mm because a change in the size of a prior art device is a design consideration within the skill of the art. In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955).

Conclusion

20. Schultis, Wolfram, Richardson, Muffke et al, Davenport et al, Anglin et al, Gibbs et al, Takahashi et al, and Sakai et al are being cited to show other examples of a flared end structure of a metal tube.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FANNIE KEE whose telephone number is (571) 272-1820. The examiner can normally be reached on 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on (571) 272-7087. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aaron M Dunwoody/
Primary Examiner, Art Unit 3679

/F. K./
Examiner, Art Unit 3679